

WHAT IS CLAIMED IS:

1. A nonaqueous electrolyte secondary battery comprising:

- a positive electrode comprising a positive-electrode active material;
- a negative electrode comprising a negative-electrode active material, the positive-electrode active material and the negative-electrode active material capable of intercalating/deintercalating lithium; and
- a nonaqueous electrolyte solution;

wherein the negative electrode further comprises carbon fibers and carbon flakes.

2. A nonaqueous electrolyte secondary battery according to claim 1, wherein the content of the carbon fibers in the negative electrode is in a range of 0.02 percent by weight to 5 percent by weight.

3. A nonaqueous electrolyte secondary battery according to claim 1, wherein the content of the carbon flakes in the negative electrode is in a range of 0.1 percent by weight to 30 percent by weight.

4. A nonaqueous electrolyte secondary battery

according to claim 1, wherein the ratio by weight of the carbon fibers to the carbon flakes in the negative electrode is in a range of 0.2 to 100.

5. A nonaqueous electrolyte secondary battery according to claim 1, wherein the carbon fibers have an average diameter of 0.01 to 1 μm and an average length of 1 to 100 μm .

6. A nonaqueous electrolyte secondary battery according to claim 1, wherein the positive-electrode active material comprises a Li compound oxide and the negative-electrode active material comprises one of a Li compound oxide, an amorphous metal oxide, and a carbonaceous material.

7. A nonaqueous electrolyte secondary battery according to claim 6, wherein the Li compound oxide of the positive-electrode active material is LiM_xO_y wherein M is at least one selected from the group consisting of Co, Ni, Mn, Fe, Al, V, and Ti, and the negative-electrode active material comprises the carbonaceous material.

8. A nonaqueous electrolyte secondary battery according to claim 7, wherein the carbonaceous material is a graphite material.

9. A nonaqueous electrolyte secondary battery according to claim 8, wherein the nonaqueous electrolyte solution comprises at least one nonaqueous solvent selected from the group consisting of propylene carbonate, ethylene carbonate, vinylene carbonate, dimethyl carbonate, diethyl carbonate, methyl ethyl carbonate, 1,2-dimethoxyethane, γ -butyrolactone, tetrahydrofuran, 1,3-dioxolane, 4-methyl-1,3-dioxolane, diethyl ether, sulfolane, methylsulfolane, acetonitrile, and propionitrile.

10. A nonaqueous electrolyte secondary battery according to claim 9, wherein the nonaqueous electrolyte solution comprises a nonaqueous solvent mixture of ethylene carbonate and dimethyl carbonate.

11. A nonaqueous electrolyte secondary battery according to claim 9, wherein the nonaqueous electrolyte solution comprises at least one electrolyte selected from the group consisting of LiClO_4 , LiAsF_6 , LiPF_6 , LiBF_4 , $\text{LiB}(\text{C}_6\text{H}_5)_4$, LiCl , LiBr , $\text{CH}_3\text{SO}_3\text{Li}$, and $\text{CF}_3\text{SO}_3\text{Li}$.

12. A nonaqueous electrolyte secondary battery according to claim 11, wherein the electrolyte solution comprises LiPF_6 .

wherein the negative electrode further comprises carbon fibers and carbon flakes.

15. A nonaqueous electrolyte secondary battery according to claim 13, wherein the content of the carbon flakes in the negative electrode is in a range of 0.1 percent by weight to 30 percent by weight.

16. A nonaqueous electrolyte secondary battery according to claim 14, wherein the ratio by weight of the carbon fibers to the carbon flakes in the negative electrode

is in a range of 0.2 to 100.

17. A nonaqueous electrolyte secondary battery according to claim 13, wherein the carbon fibers have an average diameter of 0.01 to 1 μm and an average length of 1 to 100 μm .

18. A nonaqueous electrolyte secondary battery according to claim 13, wherein the carbon flakes have an average diameter of 0.5 to 50 μm and an average length of 0.01 to 1 μm .

19. A nonaqueous electrolyte secondary battery according to claim 14, wherein the positive-electrode active material comprises a Li compound oxide and the negative-electrode active material comprises one of a Li compound oxide, an amorphous metal oxide, and a carbonaceous material.

20. A nonaqueous electrolyte secondary battery according to claim 19, wherein the Li compound oxide of the positive-electrode active material is LiM_xO_y , wherein M is at least one selected from the group consisting of Co, Ni, Mn, Fe, Al, V, and Ti, and the negative-electrode active material comprises the carbonaceous material.

21. A nonaqueous electrolyte secondary battery according to claim 20, wherein the carbonaceous material is a graphite material.

22. A nonaqueous electrolyte secondary battery according to claim 19, wherein the positive electrode and the negative electrode further comprises a binder selected from polyvinylidene fluoride, polytetrafluoroethylene, an ethylene-propylene-diene copolymer, and a styrene-butadiene rubber.

23. A nonaqueous electrolyte secondary battery according to claim 22, wherein the binder is polyvinylidene fluoride.

24. A nonaqueous electrolyte secondary battery according to claim 19, wherein the nonaqueous electrolyte solution comprises at least one nonaqueous solvent selected from the group consisting of propylene carbonate, ethylene carbonate, vinylene carbonate, dimethyl carbonate, diethyl carbonate, methyl ethyl carbonate, 1,2-dimethoxyethane, γ -butyrolactone, tetrahydrofuran, 1,3-dioxolane, 4-methyl-1,3-dioxolane, diethyl ether, sulfolane, methylsulfolane, acetonitrile, and propionitrile.

25. A nonaqueous electrolyte secondary battery according to claim 24, wherein the nonaqueous electrolyte solution comprises a nonaqueous solvent mixture of ethylene carbonate and dimethyl carbonate.

26. A nonaqueous electrolyte secondary battery according to claim 24, wherein the nonaqueous electrolyte solution comprises at least one electrolyte selected from the group consisting of LiClO_4 , LiAsF_6 , LiPF_6 , LiBF_4 , $\text{LiB}(\text{C}_6\text{H}_5)_4$, LiCl , LiBr , $\text{CH}_3\text{SO}_3\text{Li}$, and $\text{CF}_3\text{SO}_3\text{Li}$.

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~~26.~~ A nonaqueous electrolyte secondary battery according to claim 25, wherein the electrolyte solution comprises LiPF_6 .